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October 7, 1966

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Insect & Disease Control, Timber

The following report deals with 23 areas of Scarlet Oak mortality delineated on the attached map of the White Sulphur District. It is believed that mortality occurred as a result of insect defoliator attacks in the springs of 1965 and 1966, followed by continuation of a five year drought during the summer months, plus the phenomena of two late frosts which occurred just as new leaves started to appear. It is possible that as a result of the spring of 1966 defoliator attacks, new mortality areas may appear in 1967.

These comments refer to the numbered areas on the map in numerical sequence:

Area #1 - 376 acres. 160 acres of which ^{is} being currently clear cut by existing timber sales. Mortality only has been marked on 80 additional acres and will be sold. Volume marked for this sale is 1200 cords. This leaves a balance of 136 acres or approximately 2040 cords that cannot be salvaged with existing roads. It might be added, that in most of this area additional road building would be impractical because of excessively steep terrain into Snodgrass Run.

Basal areas for this acreage appear to be about 70 sq. ft. in total with about 50 square feet dead and dying leaving a remainder of 20 sq. feet or approximately 6 cords per acre.

It should be added that the 80 acres marked for salvage are ^{formerly} ~~informally~~ "out" areas of the Overlook Sale sold to Hoke.

Area #2 - (Brushy Flats) - 1704 Acres private and Government, 1200 approximate acres of which ^{are} ~~is~~ Government. Several 10 factor prism plots were taken. These indicated an average total basal area of 60 square feet and an average mortality basal area of 34 square feet. The average diameter appeared to be about 6". These figures indicate a total of about 12 cords per acre and a mortality of about 7 cords per acre. The site index is probably in the neighborhood of 55 to 60 for the oaks. It would appear that a large sale is in order here. Rights-of-way and roads are adequate to make a sale, however we have had trouble appraising pulp wood to the .50 minimum in this area, to Covington, we can probably make it O.K. by appraising to Renick siding. An administrative sale could be considered here I think because of the desirability of improving the stand by regeneration. We feel that everything should be

taken. Removal of mortality only would deplete stocking excessively. Total removal over the 1200 acres would amount to 14,400 cords or 7.2 MM Bd. Ft. It is estimated that 80% of the Brushy Flats area has damage resulting in losses of over 50% of the total basal area.

Area #3 - This is a 464 acre patch between Kincaid and Davy Runs. At present it is completely inaccessible. At least 5 miles of road would be necessary to open up this area. Basal area averages about 60 square feet in total about 40 square feet of which is dead and dying. This probably represents a volume of about 6148 cords in total and about 3712 cords of dead and dying.

Area #4 - This is an area of about 392 acres on the north side of Spice Run and just east of the Greenbrier River. It is inaccessible with the present road system. At least 10 miles of road would need to be constructed to get into this area. Then, due to hauling distances, the material probably would not appraise out to minimum stumpages. The basal area here averages about 60 square feet in total about 40 square feet of which is dead and dying. This represents a volume of approximately 5194 cords in total or 3136 cords of dead and dying Scarlet Oak.

Area #5 - This is an area of about 112 acres in the North Fork of Anthony Creek drainage and near the head of Two-Mile Run. The total basal area for this acreage is 70 square feet 40 square feet of which is dead and dying. 62 acres of this area have been marked for sale which will remove a volume of 506 cords. The remaining 50 acres are inaccessible due to terrain and would probably contain a volume of approximately 400 cords total, $\frac{1}{2}$ of which is dead and dying Scarlet Oak. Site index in the area is some what higher than the usual Scarlet Oak site.

Area #6 - This mortality area is about 176 acres in extent near the head of Sugar Run on Middle Mountain. It is encompassed by the Middle Mountain sale and has already been designated for cutting. The basal area is 55 square feet in total, 30 square feet of which is dead and dying. Volume to be removed will be approximately 2024 cords in total 1100 cords of which are dead and dying Scarlet Oak.

Area #7 - This is a 120 acre patch at the lower end of the Coles Run drainage of Upper Anthony Creek. It is included in the Middle Mountain sale area and has been designated for cutting. The total volume to be cut is approximately 992 cords approximately 360 cords of which are dead and dying. There are about 50 square feet of total basal area 20 square feet of which are dead and dying.

Area #8 - There are 216 acres in this area of mortality. It is located in the head of Sinms Run on Beaverlick Mountain. The basal area is about 60 square feet in total, 30 square feet of which are dead and dying. 200 acres of this area are under sale contract now. The remaining 16 acres are inaccessible due to steepness of terrain. Volume to be removed is about 1600 cords in total 800 of which are dead and dying. The inaccessible area contains approximately 128 cords in total 64 cords of which are dead and dying.

Area #9 - This is a 104 acre patch of mortality on the east side of the Big Draft road about $\frac{1}{2}$ way up the slope of Coles Mountain and adjacent to the south boundary of the Forest. The damage in this area is patchy and generally is in trees 3"-6" in diameter. The damaged merchantable material is of very small volume and will not support a sale. There is no road into the area and it is impractical to consider one from the stand point of salvage.

Area #10 - This area is of about 80 acres extent in the Dry Run drainage on Coles Mountain near Alvon. Approximately 48 acres are on private land. The average total basal area is 80 square feet, 35 of which are dead and dying. The total volume is estimated to be 576 cords, 256 cords of which are dead and dying. This area is not salvageable at present due to lack of right-of-way over an existing road into the area. It is questionable whether we could get a right-of-way or not in time to salvage now dead material.

Area #11 - This is a 56 acre patch on the south side near the head of Whites Draft. The site index is poor, probably below 55 for the oaks. The mortality in the effected area is patchy. It is estimated that there is a total of about 275 cords 125 cords of which are dead and dying. Basal area is about 50 square feet 20 square feet of which is mortality. The area has no roads and the low merchantable volume of dead and dying trees is too low to contemplate road construction.

Area #12 - This is another 56 acre patch near the head of White's Draft, but on the north side of the hollow. Volumes, basal areas, and inaccessibility statements for area #11 also apply to this area.

Area #13 - This is an area of approximately 280 acres lying between Humphrey's and Wades Draft. Approximately 80 acres of the area are in private ownership. The average basal area is 50 square feet and support approximately 12 cords per acre. The mortality is approximately 30 square feet or 7 cords per acre. There is a plentiful quantity of conifer reproduction on the ground. It is believed that we can get a "c" road into the area and thus salvage the 1960 cords of mortality. The effected area would be clear cut and yield a total volume of about 3360 cords.

Area #14 - This area consists of about 136 acres and lies at the head of Wiley's and Humphreys Drafts. The mortality occurs on butt ridges off Little Allegheny Mountain. It is estimated that net area effected is in the neighborhood of 60 acres. The average total basal area is about 50 square feet. Of this, about 20 square feet are dead and dying. The dead and dying volume amounts to about 300 cords and the total volume is about 720 cords. The area is very steep and there are no roads. Due to relatively low volumes, road construction for salvage purposes appears to be impractical.

Area #15 - The total area in this area is approximately 400 acres and lies on the west side of Laurel Run of Meadow Creek. Of the 400 acres, 150 were in a sale recently closed. The S.A.B. (weeding and cleaning) work was done this past summer and mapped in with the total from the air. This leaves a balance of 250 acres. The total basal area is about 70 square feet and runs around 13 cords per acre. The mortality is very scattered and estimated to be about 10 square feet in basal area and about 2 cords per acre. Total volume is about 3250 cords and the mortality amounts to about 500 cords. It is felt that recoverable volume is too light and scattered to consider a sale in this area for salvageable purposes.

Area #16 - This area is on the east side of Laurel Run of Meadow Creek and consists of approximately 520 acres. Total basal area is about 55 square feet 25 of which are dead and dying. 60 acres of the area has been cut over and S.A.B. work of weeding and cleaning done recently. Total volume for the remaining 460 acres is approximately 5980 cords. The mortality is estimated to be about 2760 cords. It is quite probable that most of this material can be salvaged by installation of class "c" roads although we have not been able to determine this for sure.

Area #17 - ~~184 acres comprise this area which lies between Barnes Lick and Stony Run of Anthony Creek. This is about a mile south and east of the Job Corps Camp at Neola. The total basal area involved is 50 square feet per acre with a mortality of about 10 square feet per acre. Volumes are estimated to be 2392 cords about 1104 cords of which is mortality. The terrain is very rough and rights-of-way are required for access. By the time rights-of-way were obtained, salvage would be impossible.~~

Area #18 - 704 acres comprise this area which straddles Sharp Hollow. This area is about $\frac{1}{2}$ mile south and east of the Job Corps Camp at Neola. The basal area is 60 square feet per acre and about 30 square feet of this is mortality. The Little Allegheny sale exists on 267 acres of this area leaving a remainder of some 437 acres containing a total volume of 5681 cords, 2840 cords of which are dead. The terrain is steep and road building is difficult, however it is felt that most of the area can be covered by extending roads from the Little Allegheny sale. This would be a difficult arrangement due to work now being carried on by the sale operator, however something might be worked out.

Area #19 - This area lies east of the Knife Hollow road now under construction and is of approximately 224 acres in extent. Total basal area is about 70 square feet per acre, 30 square feet of which is dead. It is estimated there are 3136 cords available on the area 1344 cords of which are dead. This area is salvageable due to construction of the Knife Hollow Road which is far enough along to allow process of sale.

Area #20 - This area is on the west slope of Meadow Creek Mountain and extends nearly the length of Anthony Creek from Neola north. Patches of mortality occur on the mid slopes and ridges. Approximately 760 acres are involved. Basal area averages about 55 square feet per acre about 25 square feet of which are dead. The area represents a total volume of about 7600 cords and about 3420 cords of dead and dying. This entire area is behind private land which would necessitate acquisition of numerous rights-of-way as well as construction of approximately 8 miles of road.

Area #21 - This area lies along the east side of Meadow Creek Mountain and covers an area of some 792 acres. Of these acres approximately 400 are now under timber sale agreement. The "out" areas in these sales were examined and a basal area of about 60 square feet per acre of total merchantable material was indicated. Of these about 20 square feet were dead and dying. It appeared that about 7 cords per acre were contained in these areas about 2 cords of which were dead and dying. There were many small (below merchantable size) stems in these areas. It was concluded on the ground that extension of sale roads into the "outs" would not be practical and that growing stock would not be reduced below tolerable limits. Some 250 acres in these sales have had S.A.B. work done. These showed up as mortality included in the over all acreage. There is an area of possibly 100 acres adjoining the south side of the Camp Run sale which we think can be salvaged by constructing a class "c" road south from the existing Camp Run sale road. The basal area in this portion goes to about 80 square feet per acre about 35 square feet of which is dead. There is a good crop of coniferous reproduction on the ground over much of this area. Volume estimates are 1500 cords total for the 100 acres about 780 cords of which is dead. Any patches outside

of the areas described above are deemed not salvageable because of excessively steep terrain and low volumes of dead merchantable material.

Area #22 - This area lies on the west slope of Little Allegheny Mountain and extends from the Ruckers Gap road nearly to High Top fire tower. It comprises an estimated 1160 acres. The 60 acre Bear Track Sale was within this area and the recently completed "weeding and cleaning" was mapped as mortality. There is an area of perhaps 100 acres lying to the south and west of the old sale that has been hit hard by the "Die Back". A total basal area of 80 square feet was measured about 40 square feet of which were dead. The other 40 square feet were mostly Pitch Pine and White Oak. This area could and should be salvaged by clear cutting since the mortality has reduced the stand below desirable stocking. It is estimated that 1800 cords of pulpwood could be taken off this area if the entire stand were harvested. About 900 of these cords would be dead material.

Of the remaining 1000 acres, it is estimated that 600 contain mortality either too scattered to consider salvage or inaccessible. The other 400 acres are north east, east and south east of Lake Sherwood. The basal area is approximately 80 square feet in total about 60 square feet of which are dead. Another 20 square feet are mostly Pitch and White Pine and White Oak. There is a good understory of White Pine reproduction on most of the area. A total volume figure is estimated at 7200 cords, 5200 of which are dead. All of this area is incomparatively gentle terrain and quite accessible. Most of the 400 acres are also directly visible from the Lake Sherwood Recreation Area. Bearing in mind that these 400 acres are visible from a recreation management unit and are within a watershed management zone, it seems that logging of this mortality is not desirable. The dead snags will of course be visible, but will be some what screened by the few remaining live trees.

Area #23 - This is a 680 acre area on the east slope of Meadow Creek Mountain and extends generally from Ryder Trail nearly to High Top fire tower. The northern end is included in the recently completed Upper Meadow Creek sale. The area was entered in several places for evaluation purposes. It was found that most of the merchantable mortality was too scattered for salvage.

SUMMARY

As a result of analysis of each mapped area, one thought seems to prevail that the greatest damage is on western aspects. The eastern aspects had more scattered damage and appeared to affect smaller trees generally. See table below for volume and acreage summary.

1 Area #	2 Total Gov't Acreage	3 Acreage Now Salvageable	4 Inaccessible or acres Inoperable	5 Salvageable only if access roads built	6 Miles Rd. Needed for Col. 5	7 Total Vol.	8 Salvage Mortality Vol. Cds.	9 Total Cds. Mortality not Salvageable
1	376	240 <u>1/</u>	136	0	0	3,240	1,200	2,040
2	1200	1200	0	0	0	14,400	7,200	0
3	464	0	0	464	5	6,148	3,712	0
4	392	0	0	392	10	5,194	3,136	0
5	112	62 <u>2/</u>	50	0	0	906	506	400
6	176	0	0	0	0	2,024 <u>3/</u>	1,100	0
7	120	0	0	0	0	992 <u>3/</u>	362	0
8	216	200	16	0	0	1,600 <u>4/</u>	800	128
9	104	0	104	0	Too Scattered Negligible			0
10	32	0	32	0	0	576	256	256
11	56	0	56	0	0	275	125	125
12	56	0	56	0	0	275	125	125
13	200	200	0	0	0	3,360	1,960	0
14	136	0	136	0	0	720	0	300
15	400	0	400	0	0	3,250	0	500
16	520	460 <u>5/</u>	0	0	0	5,920	2,760	0
17	184	0	0	184	1	2,392	1,104	0
18	704	437 <u>6/</u>	0	0	0	5,681	2,840	0
19	224	224	0	0	0	3,136	1,344	0
20	760	0	0	760	2	7,600	3,420	0
21	792	100 <u>7/</u>	292	0	0	1,500	780	0
22	1160 <u>8/</u>	500	600	0	0	9,000	900	5,200
23	680	0	680	0	0	4,080	0	1,360
	9008	3623	2558	1800	24	82,329	33,630	10,434

1/ 160 acres already under contract.

2/ 62 acres marked and sold recently.

3/ Designated for cutting in proposed Middle Mountain Sale.

4/ Under contract now in Simms Run Sale.

5/ 60 acres already cut over and S.A.B. work done.

6/ 267 acres now under contract. Salvageable acres need roads extended from present sale.

7/ 400 acres in existing sale areas.

8/ 60 acres in closed sale and S.A.B. work done.

9/ Not salvageable due to proximity to Lake Sherwood Recreation Area.

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